

Dear Members,

It has become increasingly clear that our ability to judge the effectiveness of this collaborative has been adversely affected by the changes in the stringency of the NHSN criteria for diagnosing laboratory confirmed catheter associated blood stream infection. You know that we spent a great deal of time to orient everyone as to the recommended 2008 definition; however, in doing so, we lost our ability to compare 2008 results with the historical record, especially the most recent past year: 2007. We are asking that you re-examine your 2008 positive blood culture reports (we trust that these are few and far between!) to see how they would have been classified using the older 2007 definition. The process is laid out in an algorithm on the accompanying pages (pages 2-4), and we have provided a way for you to indicate each case's flow through the algorithm (an example is also provided on pages 5-7) Should you wish to delve into the actual word changes associated with the change in definitions, we have also included the document with the changes indicated for your reference (page 8-9).

We realize that this is an imposition, but hope that you will be motivated to complete this retrospective survey in the interest of being able to see changes from 2007 to 2008 using the same metrics.

Thank you in advance for your cooperation.

David Wirtschafter and the rest of the ccs-ccha neonatal infection prevention team.

**PROPOSED ALGORITHM TO RECLASSIFY 2008 BLOOD CULTURES USING  
2007 NHSN CRITERIA 1-07-09**

<b>START</b>	<b>GOAL: TO RECLASSIFY 2008 POSITIVE BLOOD CULTURES USING 2007 NHSN CRITERIA FOR LABORATORY CONFIRMED (LS) CATHETER-ASSOCIATED BLOOD STREAM INFECTIONS (CABSI)</b>		
<b>GATHER TOGETHER THESE ITEMS</b>	1. BEST:: USE YOUR PREVIOUSLY FILLED OUT POSITIVE BLOOD CULTURE EVALUATION FORMS 2. OTHER RECORDS OF POSITIVE CULTURES AND CLINICAL INFORMATION		
<b>LABEL EACH CASE BEING REVIEWED WITH A LETTER FROM A THRU Z</b>	1. WE ARE ASKING THAT YOU PLACE EACH CASE'S DISTINGUISHING LETTER ALONG THE ROUTE IT TAKES THROUGH THIS REVIEW. (SEE EXAMPLE) <i>If you are reviewing more than 8 cases, please make another copy of this form and start with your next letter.</i>		
<b>QUESTION</b>	<b>ANSWER</b>	<b>CONCLUSION &amp; ACTION</b>	
<b>AT LEAST ONE POSITIVE BLOOD CULTURE?</b>	<b>➡ NO</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>STOP; NOT A CABSI CANDIDATE</b>	
<b>YES</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>↓</b>			
<b>WAS A CATHETER IN PLACE AT (or discontinued within 48 hrs before) TIME OF DIAGNOSTIC ASSESSMENT?</b>	<b>➡ NO</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>STOP; NOT A CABSI CANDIDATE</b>	
<b>YES</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>↓</b>			





**PROPOSED ALGORITHM TO RECLASSIFY 2008 BLOOD CULTURES USING  
2007 NHSN CRITERIA 1-07-09 **FILLED OUT EXAMPLE****

<b>START</b>	<b>GOAL: TO RECLASSIFY 2008 POSITIVE BLOOD CULTURES USING 2007 NHSN CRITERIA FOR LABORATORY CONFIRMED (LS) CATHETER-ASSOCIATED BLOOD STREAM INFECTIONS (CABSI)</b>		
<b>GATHER TOGETHER THESE ITEMS</b>	3. BEST.: USE YOUR PREVIOUSLY FILLED OUT POSITIVE BLOOD CULTURE EVALUATION FORMS 4. OTHER RECORDS OF POSITIVE CULTURES AND CLINICAL INFORMATION		
<b>LABEL EACH CASE BEING REVIEWED WITH A LETTER FROM A THRU Z</b>	2. WE ARE ASKING THAT YOU PLACE EACH CASE'S DISTINGUISHING LETTER ALONG THE ROUTE IT TAKES THROUGH THIS REVIEW. (SEE EXAMPLE) <i>If you are reviewing more than 8 cases, please make another copy of this form and start with your next letter.</i>		
<b>QUESTION</b>	<b>ANSWER</b>	<b>CONCLUSION &amp; ACTION</b>	
<b>AT LEAST ONE POSITIVE BLOOD CULTURE?</b>	<b>➡ NO</b> <input type="text" value="A"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<b>STOP; NOT A CABSI CANDIDATE</b>	
<b>YES</b> <input type="text" value="B"/> <input type="text" value="C"/> <input type="text" value="D"/> <input type="text" value="E"/> <input type="text" value="F"/> <input type="text" value="G"/> <input type="text" value="H"/> <b>↓</b>			
<b>WAS A CATHETER IN PLACE AT (or discontinued within 48 hrs before) TIME OF DIAGNOSTIC ASSESSMENT?</b>	<b>➡ NO</b> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text" value="E"/> <input type="text"/> <input type="text"/> <input type="text"/>	<b>STOP; NOT A CABSI CANDIDATE</b>	
<b>YES</b> <input type="text" value="B"/> <input type="text" value="C"/> <input type="text" value="D"/> <input type="text"/> <input type="text" value="F"/> <input type="text" value="G"/> <input type="text" value="H"/> <b>↓</b>			

		PAGE 2	
<b>BLOOD CULTURE(S) IS GROWING A RECOGNIZED PATHOGEN</b>	<b>➡ YES</b> <input type="checkbox"/> B <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>SIGNS OF GENERALIZED INFECTION AND ORGANISM CULTURED IS NOT RELATED TO AN INFECTION AT ANOTHER SITE?</b>	<b>➡ YES, MEETS CRITERION #1 DEFINITION OF A LC CABS I</b> <input type="checkbox"/> B <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>NO</b> <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H <b>↓</b>		<b>NO</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>↓</b> <b>BSI RELATED TO ANOTHER SITE; STOP</b>	
<b>COMMON SKIN CONTAMINANT GROWN FROM ONLY ONE BLOOD CULTURE?</b>	<b>➡ YES</b> <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <i>Perfect for instances where only one culture obtained OR one culture is positive and the other is negative</i>	<b>SIGNS OF GENERALIZED INFECTION AND ORGANISM CULTURED IS NOT RELATED TO AN INFECTION AT ANOTHER SITE?</b>	<b>➡ YES, MEETS CRITERION #2 AND/OR #3 (NHSN 2007) DEFINITION OF A LC CABS I</b> <input type="checkbox"/> C <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> NOTE FOR EACH PT BIRTHWEIGHT TO NEAREST 100 GRAMS, eg.2.7 KG <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>NO</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H <b>↓</b>		<b>NO</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> D <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>↓</b> <b>BSI RELATED TO ANOTHER SITE; STOP</b>	



## Relevant passages from documents that record the differences between 2007 and 2008 NHSN definitions for Laboratory Confirmed blood stream infection.

### Laboratory-confirmed bloodstream infection (LCBI)

- LCBI diagnostic criteria may be used for all (NICU) patients.
- LCBI must meet one of the following three criteria:
  - Criterion 1: Patient has a recognized pathogen cultured from one or more blood cultures and organism cultured from blood is not related to an infection at another site.

- Criterion 2: Patient has signs of generalized infection:

- Elevated temperature ( $> 38\text{ }^{\circ}\text{C}$  rectal)### or chills or hypotension (at least one) AND
- No other infectious focus (“and signs and symptoms and positive laboratory tests not related to an infection at another site”) AND
- ~~Common skin contaminant# cultured from two or more blood cultures drawn on separate occasions.~~

**Comment [DDW1]:** Clarifies meaning, however the CDC document does not include the word “rectal”

- ~~Common skin contaminant# cultured from at least one blood culture AND the patient has an intravascular line in place AND the physician instituted appropriate antimicrobial therapy.~~

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- ~~positive antigen test on blood or urine (e.g., H. influenzae, S. pneumoniae, N. meningitidis, or Group B Streptococcus). *Note: item specifically omitted.*~~

**Comment [DDW2]:** Per 2008 update

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- Criterion 3: Patient is < 1 year of age AND

- Patient has signs of generalized infection
  - ~~Elevated temperature ( $>38\text{ }^{\circ}\text{C}$  rectal)### or hypothermia (temperature  $< 37\text{ }^{\circ}\text{C}$  rectal)###~~  
*Notes: 1. While the CDC’s NHSN specifies rectal temperatures, none of the collaborating NICUs routinely perform these measurements in neonates for a variety of good reasons; 2. in their place, axillary or equivalent measurements are used, but the collaborating members do not believe the temperature equivalencies currently specified by NHSN realistically reflect their neonatal populations’ temperature data; 3. instead the collaborative recommends that axillary temperatures should be considered a screening method; axillary temperatures  $< 36.0\text{ }^{\circ}\text{C}$  ( $< 96.8\text{ }^{\circ}\text{F}$ ) should be tentatively labeled as “hypothermia” and axillary temperatures  $> 38.0\text{ }^{\circ}\text{C}$  ( $>$*

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**Comment [DDW3]:** This section rewritten as shown below; and replaced with text and data from the survey-changes approved 2-24-08

**Comment [DDW4]:** Extensively reformatted... brought all of the notes into one section and gave them numbers rather than symbols

100.4 °F) should be tentatively labeled as “fever”; and 4. because of the variability in axillary temperature readings, the presence of an elevated or hypothermic temperature will only be termed **confirmed** if there have been at least **two consecutive abnormal measurements or one abnormal rectal (or other core) measurement.**

- ~~or apnea or bradycardia (at least one) AND~~
- **No other infectious focus (“and signs and symptoms and positive laboratory tests not related to an infection at another site”) AND**
  - **Common skin contaminant# cultured from two or more blood cultures drawn on separate occasions.**
  - ~~Common skin contaminant# cultured from at least one blood culture AND the patient has an intravascular line in place AND the physician instituted appropriate antimicrobial therapy~~
  - **positive antigen test on blood or urine (e.g., H. influenzae, S. pneumoniae, N. meningitidis, or Group B Streptococcus).** *Note: item specifically omitted.*

**# Common skin contaminants defined: e.g. diphtheroids [*Corynebacterium* spp.], *Bacillus* [not *B. anthracis*] spp., *Propionibacterium* spp., coagulase-negative staphylococci [including *S. epidermidis*], viridans group streptococci, *Aerococcus* spp., *Micrococcus* spp.)** [NHSN Newsletter 12-07](#)

**## Temperature equivalents defined for infants < 1 year of age:**

“For patients < 1 year of age, the following temperature equivalents for fever and hypothermia may be used:

**Fever:** 38°C rectal/tympenic/temporal artery = 37°C oral = 36°C axillary

**Hypothermia:** 37°C rectal/tympenic/temporal artery = 36°C oral = 35°C axillary.” [NHSN Newsletter 12-07](#)

**###** In criteria 2 and 3, the phrase “two or more blood cultures drawn on separate occasions” means 1) that blood from at least two blood draws were collected within two days of each other and 2) that at least one bottle from each blood draw is reported by the laboratory as having grown the same common skin contaminant organism (i.e., is a positive blood culture). [NHSN Newsletter 12-07](#)

**Comment [DDW5]:** Suggest keeping number 3.

**Deleted:** *Notes: 1. While the CDC specifies rectal temperatures, none of the collaborating NICUs perform these measurements for a variety of good reasons; 2. in their place, axillary or equivalent measurements will be accepted; . Because of the variability in temperature readings, the presence of an elevated or hypothermic temperature will only be termed confirmed if there have been at least two consecutive abnormal measurements.*

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**Comment [DDW6]:** Per 2008 update

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